About Welding Alloys Group

Our technical ‘spark’ solves your industrial challenges

Welding Alloys boasts more than 50 years of experience providing hardfacing, joining, rebuilding and cladding products and solutions to an extensive range of industries. We are the go-to provider of advanced welding consumables, automated equipment for wear protection, and engineered wear protection solutions, which we achieve through a total commitment to our customers, our people and innovation.

More than 50 years of company milestones

1966
Welding Alloys Ltd is founded in Fowlmere, near Cambridge (UK) by Jan Stekly

1968
WA starts producing hardfacing cored wires

1973
Welding Alloys is opened in France, this is the beginning of the Welding Alloys Group

1974
WA designs and manufactures its first generation of welding equipment

1983
WA introduces first modular system - WAMS

1989
WAMS Robo trak added to the range allowing program recording for the first time

1993
WAMS D2 allows multiple program storage and movement in 7 axis giving greater flexibility

1997
D3-Touch with fully integrated touch screen control - online monitoring, control and program storage

2007
Thousands of WA Machines operating globally, solving customers’ industrial challenges

2020
The Welding Alloys Group has pioneered the design and manufacture of automated welding equipment since the early 1970s. Our range of machines offers the most sophisticated technology to enable high quality and reproducibility of demanding hardfacing, cladding and rebuilding applications.

Contents

WA Machines range 3
Roll Cladder 5
Rotary / Flat Plate Cladder 6
Rotary Yoke / Screwflight 7
H-Frame 8
Portable equipment 9
Application specific equipment 10
Control systems - D3 Touch 11
Retrofit solutions 12
Welding Alloys support at every step 13
WA Machines Range

Each machine is designed and fabricated to meet the needs of the customer’s hardfacing, cladding and rebuilding jobs, ensuring that the weld deposit is of consistent quality and that productivity is maximised. Welding Alloys offers different types of equipment to suit different working environments ranging from:

- **Stationary equipment** - heavy-duty machines for use in workshops only
- **Portable equipment** - lightweight and for use in-situ or in workshops
- **Application specific equipment** - custom, specially suited to the required application
- **Retrofit solutions** - upgrading aging machines with the latest D3 control technology

All machines can be adapted to operate with a variety of welding processes and can be used with single or multiple heads, operating with single or twin wire. Thanks to the expertise of our machine engineers, Welding Alloys machines are capable of carrying out complex and precise welding patterns that are easily programmed into the control system.

<table>
<thead>
<tr>
<th>Industries</th>
<th>Capacity</th>
<th>Welding process</th>
<th>Applications</th>
<th>Suitable WA Consumables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel, general maintenance</td>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td>FCAW-S, FCAW-G, GMAW, SAW</td>
<td>Rollers and shafts</td>
<td>CHROMECORE 414N-S Ø2.4mm to 3.2mm</td>
</tr>
<tr>
<td>Cement, steel, mining, power, security, agriculture, recycling</td>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td>FCAW-S, FCAW-G, GMAW, SAW</td>
<td>Plate cladding</td>
<td>SPEEDARC BUF-S Ø2.4mm</td>
</tr>
<tr>
<td>Oil &amp; Gas, forging, public works, repair &amp; maintenance</td>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td>FCAW-S, FCAW-G, GMAW, SAW, GTAW, PAW</td>
<td>Hardfacing and cladding of cones, wheels, pistons, screwflights, forging dies and idler wheels</td>
<td>HARDFACE HC-O Ø2.8mm to 3.2mm</td>
</tr>
<tr>
<td>Steel, cement, power, agriculture, mining, oil &amp; gas</td>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td>FCAW-S, FCAW-G, GMAW, SAW, GTAW, PAW</td>
<td>Hardfacing, joining - galvanizing pots, pipe flanges, hot forging shafts, screw conveyors, valves, hardfaced plates, rolls, sprockets, hammers</td>
<td>ROBODUR K 600 Ø1.6mm</td>
</tr>
<tr>
<td>General maintenance workshops and in-situ applications including, mining, quarrying, power and recycling</td>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td>FCAW-S, FCAW-G, GMAW, SAW, GTAW, PAW</td>
<td>Hardfacing, cladding and joining on rolls, valves, beams, V-joints, pipes, pad welds and fillet joints</td>
<td>HARDFACE HC-O Ø1.6 to 4.0mm</td>
</tr>
<tr>
<td>Flux cored wire Ø1.2 to 4.0mm</td>
<td></td>
<td></td>
<td></td>
<td>HARDFACE TIC-O Ø1.6 to 2.8mm</td>
</tr>
<tr>
<td>Single or twin wire</td>
<td></td>
<td></td>
<td></td>
<td>HARDFACE HC-O Ø1.6 to 2.8mm</td>
</tr>
<tr>
<td>For rolls up to 50 tonnes</td>
<td></td>
<td></td>
<td></td>
<td>GAMMA 182-0 Ø1.6mm</td>
</tr>
<tr>
<td>Up to 5 welding heads</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Roll Cladder
High performance, top-quality roll cladding

Features
- Welding of rolls up to 50 tonnes
- Multiple welding heads
- Multiple roll capabilities
- Welding patterns: stringer, square wave, oscillation, chevron and spiral welding beads
- Compatible with welding processes: FCAW-S, FCAW-G, GMAW, SAW

Benefits
- Achieves perfect quality welded materials
- Maximum productivity
- Easy operator interface
- Storage of WPS and programs
- Modular design allowing additional heads and stations
- Adaptable for various welding processes

Options:
Water cooled welding kit, additional welding head, twin wire-feed unit with wire straightener, fast oscillators, interface with power source, fume extraction, gas shielded welding gun kits, automatic flux recovery system

WA Consumables:
Welding Alloys Ø2.4mm CHROMECORE wire
Productivity - 15kg / hour / welding head

Incorporating the latest D3 Control technology allows the complete welding of the journal, steps and roll body in a single operation

Rotary / Flat Plate Cladder
Productive, user-friendly plate cladding

Features
- Dedicated for plate cladding applications
- Heavy-duty construction
- Constant surface speed
- Open arc welding
- Seam Jump function to stop welding at the junction of the plate
- High accuracy

Benefits
- Smooth inter-bead tie-ins
- Maximum productivity
- Easy operator interaction
- Different welding beads: stringers beads, oscillated, sine waves
- Homogeneous plate chemistry

Options:
Water cooled welding kit, additional welding heads, twin wire-feed unit with wire straightener, fast oscillators, interface with power source, arc viewing screen, fume extraction, gas shielded welding gun kits

WA Consumables:
Welding Alloys Ø3.2mm HARDFACE wire
Productivity - 21kg / hour / welding head (8+4 Hardplate) - over 250m²/week

The welding precision of this machine reduces wire wastage by 770kg/week compared to equivalent jobs using machines with older technology
### Screwflight / Rotary Yoke

**One machine, a range of possibilities**

**Features**
- Combines up to 6-axis movement
- Import facility for component geometries
- Constant surface speed
- Programmable Helix mode
- Welding patterns: stringer, square wave, oscillation, chevron and spiral welding beads.
- D3-Touch control system
- High accuracy

**Options:**
- Water cooled welding kit
- Twin wire-feed with wire straightener, fast oscillators, interface with power source, arc viewing screen, fume extraction, gas shielded welding gun kits, sub-arc welding kit, automated flux recovery

**Benefits**
- Maximum productivity
- Easy operator interaction
- Allows down-hand welding via 6 axis movement
- Storage of WPS and Programs
- Various welding processes: FCAW-S, FCAW-G, GMAW, SAW, GTAW, PAW
- Easy manipulation of complex components

**WA Consumables:**
- Welding Alloys Ø3.2mm cladding wire
- Productivity: 9kg / hour / welding head on marine pistons

> From screwflights to drill stabilizers and ball valves to pistons, this range of machines, together with Welding Alloys’ range of cored wires, offers complete control of the welding pool to achieve perfectly clad components.

### H-Frame

**A cost-effective all-rounder**

**Features**
- Lightweight or Heavy Duty configurations
- Robust constructions
- Up to 7 axis movement
- D3 Touch or pendant control systems
- 2D Shape welding software
- Repeatable programming and storage

**Options:**
- Water cooled welding kit
- Twin wire-feed with wire straightener, fast oscillators, interface with power source, arc viewing screen, fume extraction, gas shielded welding gun kits, sub-arc welding kit, automated flux recovery, rotary table, positioners, welding lathes, manipulators and flat welding tables

**Benefits**
- Maximum productivity
- Easy operator interaction
- Storage of WPS and Programs
- High quality weld deposits
- Adaptable for various welding processes: FCAW-S, FCAW-G, SAW, GTAW, PAW
- Fast and easy weld set up
- Easily adaptable for various configurations

**WA Consumables:**
- Full range of Welding Alloys consumables compatible with this machine from Ø1.0mm to Ø4.0mm, from joining through hardfacing and cladding, achieving maximum productivity and quality

> Designed for fast and easy weld set-up of different components, while maintaining precise control over the complete welding process.
Portable Equipment
Welding versatility at your fingertips

Features
- Light, modular, portable
- Robust aluminium construction
- D3 Pendant control box with remote control
- Wire-feeder and air cooled torch
- Step-over cable and switch
- Repeatable programming
- Interface to customers’ semi-automatic set up

Benefits
- Achieves perfect quality welded materials
- Easy operator interaction
- Maximum productivity
- Adaptable for various welding processes
- Cost effective first step into automation

Options:
Water cooled welding kit, twin wire-feed with wire straightener, fast oscillators, interface with power source, interface with rotary device, fume extraction, gas shielded welding gun kits, basic SAW equipment

WA Consumables:
Full range of Welding Alloys consumables compatible with this machine from Ø1.0mm to Ø4.0mm, from joining through to hardfacing and cladding, achieving maximum productivity and quality

Application Specific Equipment
An automated solution for specific needs

Our application specific machines offer customisation and flexibility, which means we can produce individual machines that are created to fulfill a very niche requirement. With Welding Alloys, you can benefit from a machine that is configured to do exactly what you need it to.

From the very first meeting, our design engineers are able to establish your individual machine specification from many years of experience in the industry. The range is only limited by your imagination – from urban rail refurbishment to complex profiles and thermal coating applications, Welding Alloys Machines has a solution.

FTR MACHINE
Frog Top Rail (FTR) Machine for refurbishment of worn tracks and crossings in the rail industry
Profile Roll Cladder for cladding of profile shaping rolls for the steel industry with complex geometries
Column and Boom for cladding of cone crushers and gyratory mantles
Box Beam Welder for welding box sections and beams via a twin wire, twin head process for Oil and Gas applications
Elbow Cladder for internal hardfacing of elbows

Benefit from increased efficiency thanks to improved health and safety and reduced welder fatigue compared to manual welding.
Control Systems - D3-Touch
A touch of Simplicity!

D3-Touch from Welding Alloys is a touch screen based control technology for automation allowing effective and efficient implementation of fully automated welding techniques and processes.

Welding Alloys incorporates new technology into all Welding Alloys machines, improving performance and accuracy of the welding process. This technology complements the precision engineering mechanics resulting in maximum performance from our welding machines.

Features
- Touch screen, high degree of motion and process control
- Real-time synchronisation
- Touch screen with intuitive GUI (Graphical User Interface)
- Integrated processing
- Data logging functionality
- Built-in condition monitoring facility
- Self / remote diagnostics
- Remote monitoring

Benefits
- Saves set-up time through the setting up of repeatable welding parameters
- Provides precision welding - reducing material/welding consumables used
- Productivity improvement through high efficiency/low downtime
- System is simple to use and program with only the requirement for one operator
- Full traceability of materials used and the welding process
- Minimizes human interference during production
- Saves time and cost, increasing efficiency and reproducibility

Retrofit Solutions
Reconditioning and upgrades

Our WA Machines upgrade and retrofit service ensures welding equipment remains up-to-date.

We provide the option to retrofit old, existing machines and replace obsolete controls and hardware with the latest D3-Touch or D3 Pendant systems without the need to replace the entire machine, ensuring continuity of production at a reduced cost.

D3 upgrade
- Complete update of all hardware and software
- Replacement of worn parts and electrical cables*
- Check existing mechanical parts*
- A full revision of the mechanics*
- Replacement of some DC motors to AC*

Benefits
- Economic solution
- Latest technology - reliability, precision and repeatability
- Increased productivity – program storing, multiple options and tailored features upon request
- Components readily available
- Safety – conforms to the latest electrical safety standards

A WA Machines upgrade allows for greater and more accurate axis control and storage of programs for repeatable quality
Welding Alloys support at every step

Right from concept through to post-purchase training and support, we are there!

Committed to your success

Welding Alloys Group is a strategic partner for your long-term growth and component manufacture/refurbishment, providing high-performance welding technologies and inherent reliability to help your business gain a sustainable competitive advantage.

Customer oriented design

Working with the Welding Alloys design team ensures you have a machine that is fit for purpose and adds your business growth.

Every machine is designed using:
- 3D CAD modeling software
- Stress analysis simulations

At every stage, Welding Alloys engineers are testing each part, guaranteeing its performance and reliability from design concept, quality assurance testing to installation and production.

Technical Support

Welding Alloys is dedicated to customers and providing extensive support for all machines. We fully support our customers worldwide by offering a full installation, commissioning and training service for all of our machines.

Reliability

At Welding Alloys, we know the importance of reliable machines and understand how expensive machine downtime can be. We offer spare parts and provide a variety of maintenance solutions to maximise productivity, reduce operating costs and extend the overall operational lifespan of your machines.

Installation

Welding Alloys provides on-site commissioning and start-up of all machines. All of our Welding Alloys subsidiaries have a machines technical expert to support and advise customers.

Training

In addition to delivering a welding solution, Welding Alloys are able to provide optional multi-level training to operators and supervisors alike from our dedicated team of application specialists.
Our Technical ‘Spark’ Solves Your Industrial Challenges

WA Consumables
The go-to provider of advanced welding consumables

WA Machines
The go-to provider of engineered wear protection solutions

WA Integra™
The go-to provider of engineered wear protection solutions

A worldwide presence

www.welding-alloys.com